

IN THE CLAIMS:

Please amend Claims 2, 5, 21, 36, 52, 56, 58, and 62 as follows, without prejudice to or disclaimer of the subject matter therein. Please add Claims 69-71.

Listing of Claims:

1. (Previously Presented) An isolated DNA molecule comprising a DNA sequence encoding a dicamba-degrading oxygenase from a dicamba-degrading bacterium, wherein said dicamba-degrading oxygenase has a subunit molecular mass of about 40kD, comprises an iron-sulfur cluster, and catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

2. (Currently Amended) An isolated DNA molecule comprising a DNA sequence encoding a dicamba-degrading oxygenase, wherein said dicamba-degrading oxygenase is selected from the group consisting of:

a) a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4;

b) a fragment of SEQ ID NO:4 that ~~has dicamba-degrading oxygenase activity~~ catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA); and

c) a dicamba-degrading oxygenase having an amino acid sequence which is at least about 65% identical to the amino acid sequence of SEQ ID NO:4 and which ~~has dicamba-degrading oxygenase activity~~ catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

3. (Previously Presented) The DNA molecule of Claim 2 comprising the nucleotide sequence of SEQ ID NO:3.

4. (Previously Presented) A DNA construct comprising a DNA sequence encoding a dicamba-degrading oxygenase from a bacterium that degrades dicamba operatively linked to expression control sequences, wherein said dicamba-degrading oxygenase has a subunit molecular mass of about 40kD, comprises an iron-sulfur cluster, and catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

5. (Currently Amended) A DNA construct comprising a DNA sequence encoding a dicamba-degrading oxygenase operatively linked to expression control sequences, wherein said dicamba-degrading oxygenase is selected from the group consisting of:

- a) a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4;
- b) a fragment of SEQ ID NO:4 that has dicamba-degrading oxygenase activity catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA); and
- c) a dicamba-degrading oxygenase having an amino acid sequence which is at least about 65% identical to the amino acid sequence of SEQ ID NO:4 and which has dicamba-degrading oxygenase activity catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

6. (Original) The DNA construct of Claim 5 comprising the nucleotide sequence of SEQ ID NO:3.

7. (Previously Presented) The DNA construct of Claim 5 which is a vector.

8-20. (Cancelled)

21. (Currently Amended) A transgenic host cell comprising DNA encoding a dicamba-degrading oxygenase, said DNA being operatively linked to expression control sequences;

wherein said dicamba-degrading oxygenase is selected from the group consisting of:

- a) a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4;
- b) a fragment of SEQ ID NO:4 that has dicamba-degrading oxygenase activity catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA); and
- c) a dicamba-degrading oxygenase having an amino acid sequence which is at least about 65% identical to the amino acid sequence of SEQ ID NO:4 and which has dicamba-degrading oxygenase activity catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

22. (Previously Presented) The transgenic host cell of Claim 21 wherein the DNA encodes a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4.

23. (Original) The transgenic host cell of Claim 22 wherein the DNA comprises the nucleotide sequence of SEQ ID NO:3.

24. (Previously Presented) The transgenic host cell of Claim 21 or 58 which is a plant cell.

25-35. (Cancelled)

36. (Currently Amended) A transgenic plant or part of a said transgenic plant comprising one or more cells comprising DNA encoding a dicamba-degrading oxygenase, said DNA being operatively linked to expression control sequences;

wherein said dicamba-degrading oxygenase is selected from the group consisting of:

- a) a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4;
- b) a fragment of SEQ ID NO:4 that has dicamba-degrading oxygenase activity catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA); and
- c) a dicamba-degrading oxygenase having an amino acid sequence which is at least about 65% identical to the amino acid sequence of SEQ ID NO:4 and which has dicamba-degrading oxygenase activity catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

37. (Previously Presented) The transgenic plant or plant part of Claim 36 wherein the DNA encodes a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4.

38. (Previously Presented) The transgenic plant or plant part of Claim 37 wherein the DNA comprises the nucleotide sequence of SEQ ID NO:3.

39. (Previously Presented) The transgenic plant or plant part of Claim 36 wherein the plant is a broadleaf plant which is tolerant to dicamba as a result of the expression of the dicamba-degrading oxygenase and the plant part is a part of a broadleaf plant which is tolerant to dicamba as a result of the expression of the dicamba-degrading oxygenase.

40-43. (Cancelled)

44. (Previously Presented) A method of controlling weeds in a field containing a transgenic plant according to any one of Claims 36-39, 61-62 or 64-65 comprising applying an amount of dicamba to the field effective to control the weeds in the field.

45-46. (Cancelled)

47. (Previously Presented) A method of selecting transformed plant cells comprising:

providing a population of plant cells;

transforming at least some of the plant cells in the population of plant cells with the DNA construct according to any one of Claims 4-7, 54-56 or 66; and

selecting the transformed plant cells by culturing the resulting population of plant cells in a culture medium containing dicamba at a concentration selected so that transformed plant cells proliferate and untransformed plant cells do not proliferate.

48. (Previously Presented) A method of selecting transformed plants comprising:

providing a population of plants which comprises one or more plants comprising the DNA construct according to any one of Claims 4-7, 54-56 or 66; and

selecting transformed plants by applying an amount of dicamba to the population of plants selected so that transformed plants grow, and growth of untransformed plants is inhibited.

49. (Cancelled)

50. (Previously Presented) The DNA molecule of Claim 1 comprising a DNA sequence encoding a *Pseudomonas* dicamba-degrading oxygenase.

51. (Previously Presented) The DNA molecule of Claim 1 comprising a DNA sequence encoding a *Pseudomonas maltophilia* dicamba-degrading oxygenase.

52. (Currently Amended) The DNA molecule of Claim 2 comprising a DNA sequence encoding a dicamba-degrading oxygenase which is at least about 85% identical to the amino acid sequence of SEQ ID NO:4 and which has ~~dicamba-degrading oxygenase activity~~ catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

53. (Previously Presented) The DNA molecule of Claim 2 comprising a DNA sequence encoding a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4.

54. (Previously Presented) The DNA construct of Claim 4 comprising a DNA sequence encoding a *Pseudomonas* dicamba-degrading oxygenase.

55. (Previously Presented) The DNA construct of Claim 4 comprising a DNA sequence encoding a *Pseudomonas maltophilia* dicamba-degrading oxygenase.

56. (Currently Amended) The DNA construct of Claim 5 comprising a DNA sequence encoding a dicamba-degrading oxygenase which is at least about 85% identical to the amino acid sequence of SEQ ID NO:4 and which ~~has dicamba-degrading oxygenase activity catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA)~~.

57. (Previously Presented) The DNA construct of Claim 5 comprising a DNA sequence encoding a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4.

58. (Currently Amended) The transgenic host cell of Claim 21 wherein the DNA encodes a dicamba-degrading oxygenase which is at least about 85% identical to the amino acid sequence of SEQ ID NO:4 and which ~~has dicamba-degrading oxygenase activity catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA)~~.

59. (Previously Presented) A transgenic host cell comprising DNA encoding a dicamba-degrading oxygenase from a bacterium that degrades dicamba, said DNA being operatively linked to expression control sequences, wherein said dicamba-degrading oxygenase has a subunit molecular mass of about 40kD, comprises an iron-sulfur cluster, and catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

60. (Previously Presented) The transgenic host cell of Claim 59 wherein the DNA encodes a *Pseudomonas* dicamba-degrading oxygenase.

61. (Previously Presented) The transgenic host cell of Claim 59 wherein the DNA encodes a *Pseudomonas maltophilia* dicamba-degrading oxygenase.

62. (Currently Amended) The transgenic plant or plant part of Claim 36 wherein the DNA encodes a dicamba-degrading oxygenase which is at least about 85% identical to

the amino acid sequence of SEQ ID NO:4 and which has dicamba-degrading oxygenase activity catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

63. (Previously Presented) A transgenic plant or part of a said transgenic plant comprising one or more cells comprising DNA encoding a dicamba-degrading oxygenase from a bacterium that degrades dicamba, said DNA being operatively linked to expression control sequences, wherein said dicamba-degrading oxygenase has a subunit molecular mass of about 40kD, comprises an iron-sulfur cluster, and catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

64. (Previously Presented) The transgenic plant or plant part of Claim 63 wherein the DNA encodes a *Pseudomonas* dicamba-degrading oxygenase.

65. (Previously Presented) The transgenic plant or plant part of Claim 63 wherein the DNA encodes a *Pseudomonas maltophilia* dicamba-degrading oxygenase.

66. (Previously Presented) The transgenic plant or plant part of Claim 63 wherein the plant is a broadleaf plant which is tolerant to dicamba as a result of the expression of the dicamba-degrading oxygenase and the plant part is a part of a broadleaf plant which is tolerant to dicamba as a result of the expression of the dicamba-degrading oxygenase.

67. (Previously Presented) The DNA construct of Claim 4 which is a vector.

68. (Previously Presented) The isolated DNA molecule of Claim 1, wherein said dicamba-degrading oxygenase has a K_m for dicamba of about $10\mu M$ and has a V_{max} of approximately 100-110 nmol/min/mg.

69. (Added) The isolated DNA molecule of Claim 2, wherein said dicamba-degrading oxygenase is selected from the group consisting of:

- a) a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4; and
- b) a fragment of SEQ ID NO:4 that catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

70. (Added) The transgenic host cell of Claim 21, wherein said dicamba-degrading oxygenase is selected from the group consisting of:

a) a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4; and

b) a fragment of SEQ ID NO:4 that catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

71. (Added) The transgenic plant or plant part of Claim 36, wherein said dicamba-degrading oxygenase is selected from the group consisting of:

a) a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4; and

b) a fragment of SEQ ID NO:4 that catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).